MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2016 / 2017

TSA 2131 – SYSTEM ANALYSIS AND DESIGN

(All sections / Groups)

17 OCTOBER 2016
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of 5 pages including the cover page.
2. Attempt **ALL** questions. The distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.
4. Please answer Question 4(a) in the appendix A.

QUESTION 1

(a) Briefly describe the difference between requirements determination and requirements structuring.

(3 marks)

(b) What characteristics must a project have in order for critical path scheduling to be applicable?

(4 marks)

(c) Describe what is meant by eXtreme Programming?

(3 marks)

QUESTION 2

(a) Compare and contrast the FOUR (4) approaches to reuse.

(4 marks)

(b) Assuming the following scenario identified during system analysis and design.

- User requirements are not clear or well understood.
- One or a few users and other stakeholders are involved with the system.
- Possible designs are required in concrete form to fully user evaluation.
- History of communication problems between analysts and users.

Suggest appropriate methodology to be used during requirements determination and justify your answer.

(3 marks)

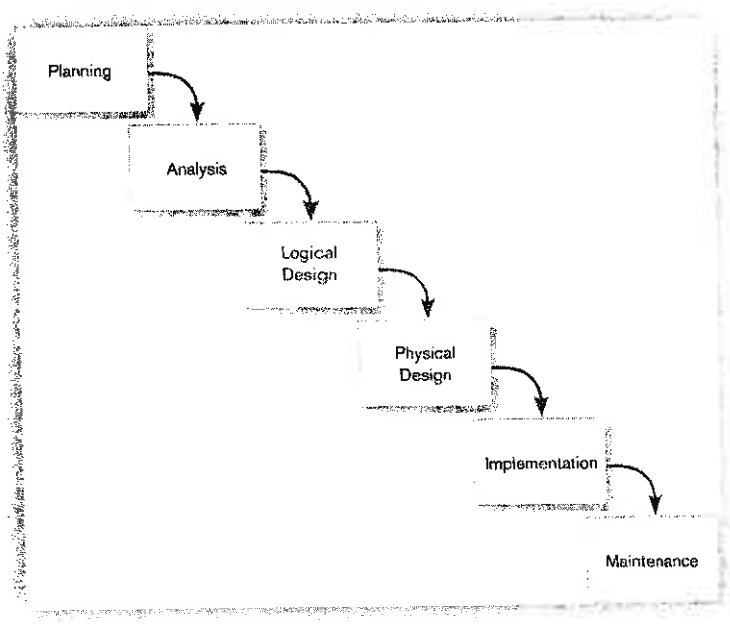

Figure 1-1 Traditional SDLC

(c) Given the traditional System Development Life Cycle (SDLC) in figure 1-1, critique TWO (2) common problems of SDLC?

(3 marks)

QUESTION 3

(a) Contrast the first three normal form of a database design: 1NF, 2NF and 3NF

(3 marks)

(b) Given the project task duration along with their required times for completion as below:

Activity	Time (weeks)	Immediate Predecessors
A	3	-
B	2	1
C	2	2
D	6	2
E	3	3
F	2	3,4
G	4	4,5
H	5	6,7
I	7	7
J	2	8,9

(i) Construct a network diagram based on the activities. For each activity, identify its early finish time, late finish time, and slack.

(6 marks)

(ii) Identify the critical path.

(1 mark)

QUESTION 4

(a) Assuming monetary benefits of an information system at RM 40,000 per year, one-time cost of RM50,000, recurring cost of RM 10,000 per year, a discount rate of 12%, and a five-year time horizon.

(i) Calculate the Net Present Value of these costs and benefits of an information system. (4 marks)

(ii) Find the point of breakeven. (3 marks)

(b) How Nominal Group Technique benefit to requirement determination. (3 marks)

QUESTION 5

(a) Construct a decision table based on the descriptions demonstrated by Structured English depicted below. Complete the diagram with the corresponding legend of choices. (4 marks)

```
READ Transaction
    IF Transaction are made online.
        THEN IF Transaction amount is greater than $1,000.
                THEN 5% discount.
             ELSE IF the transaction amount is between $100 and $1,000.
                THEN 2% discount.
             ELSE IF the transaction amount is less than $100.
                THEN No discount.
    ELSE No discount
    ENDIF
```

(b) Develop a context diagram for the Order Processing System described in the following narrative.

World SP is a leading online shopping mall offering a fast, secure and convenient online shopping experience with a broad product offering in categories ranging from fashion, consumer electronics, household products etc. Customers are required to register in the website and place order online.

When the customer orders come in, the customer file is updated. If the item is out of stock, then the inventory control department is notified. If the order is from a new customer, a new registration of customer information is created.

Given the customer order, the picking slip is generated and sent to warehouse for processing. The process of shipping a customer order involves getting the

goods from the warehouse and matching up the customer shipping statement, getting the correct customer address, email and shipping it all to the customer. Subsequently, the customer bill statement is generated and sent via email. The account receivable report is created online and sends to the accounting department.

(6 marks)

QUESTION 6

Data Entities	Equipment	Employee	Vendor	Raw Material	Order	Work Center
Circuit Manufacturing	X	X		X	X	X
Circuit Design	X	X		X	X	X
Order Fulfillment	X	X			X	
Distribution	X	X	X		X	

Figure 6-1: Data Entity-to-Function Matrix

(a) Given Data Entity-to-Function Matrix in figure 6-1, evaluate how the affinity clustering found in the product operation give impact to project identification and information system planning?

(4 marks)

(b) Relate the use of Data Flow Diagram (DFD), Decision Table and E-R Diagram in structuring system requirements.

(3 marks)

(d) As the system analysis, you are assigned as the peer to review a software program design. Describe how Structure Walkthrough can be used in the peer reviewing process.

(3 marks)

End of Paper

APPENDIX A

Answer Sheet for Question 4(a)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Totals
Net Economic Benefit							
Discount Rate							
PV of Benefits							
NPV of all Benefits							
One-Time Costs							
Recurring Costs							
Discount Rate							
PV of Recurring Costs							
NPV of all Costs							
Overall NPV							
Overall Return on Investment (ROI)							
Break-even Analysis							
Yearly NPV Cash Flow							
Overall NPV Cash Flow							

PV – Present Value
NPV – Net Present Value